Fig. 9 is a restriction map of the plasmid pAF100. (See also YEAST, 6:521-534, 1990, which is relied upon and incorporated by reference herein).

Figs. 10A and 10B show the nucleotide sequence and restriction sites of regions of the plasmid pAF100 (SEQ ID NOS: 45-50). --

On page 12, replace the last paragraph with the following new paragraph:

-- The enzyme I-*Sce*I has a known recognition site. (ref. 14.) The recognition site of I-*Sce*I is a non-symmetrical sequence that extends over 18 bp as determined by systematic mutational analysis. The sequence reads: (arrows indicate cuts)

```
                ↓
5'   TAGGGATAACAGGGTAAT   3' (SEQ ID NO:51)
3'   ATCCCTATTGTCCCATTA   5' (SEQ ID NO:52). --
                ↑
```

On pages 41 to 42, replace the bridging paragraph with the following:

-- -e- The supernatant of this clone was used to infect other mouse cells (1009) by spreading 10^5 virus particles on 10^5 cells in DMEM medium with 10% fetal calf serum and 5 mg/ml of "polybrene" (hexadimethrine bromide). Medium was replaced 6 hours after infection by the same fresh medium. --

After page 52, and before page 53, please insert the attached pages titled "SEQUENCE LISTING".

IN THE CLAIMS

Please cancel claims 1-26.

Please add the following new claims:

--27. A method for *in vivo* site directed genetic recombination in an organism comprising:

(a) providing a transgenic cell having at least one HO endonuclease or Group I intron encoded endonuclease recognition site inserted at a unique location in a chromosome;

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(b) providing an expression vector that expresses said endonuclease in said transgenic cell;

(c) providing a plasmid comprising a gene of interest and a DNA sequence homologous to the sequence of the chromosomal DNA, allowing homologous recombination;

(d) transfecting said transgenic cell with said plasmid of step (c);

(e) expressing said endonuclease from said expression vector in said cell; and

(f) cleaving said endonuclease recognition site with said endonuclease, whereby said cleavage promotes the insertion of said gene of interest into said chromosome of said organism at a specific site by homologous recombination.

28. The method of claim 27, wherein said endonuclease recognition site has been introduced into said cells by homologous recombination.

29. The method of claim 27, wherein said endonuclease recognition site has been introduced into said cells by retroviral insertion.

30. The method of claim 27, wherein said organism is yeast.

31. The method of claim 27, wherein said organism is bacteria.

32. The method of claim 27, wherein said organism is a mammal.

33. The method of claim 27, wherein said endonuclease site is a Group I intron encoded endonuclease site.

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